

Amendments to the claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Claim 1 (currently amended) A system for measuring optical characteristics comprising:

 a laser producing an excitation signal, wherein the laser is not a pulsed laser;

 a single-mode optical fiber coupled to the laser so that a coupled excitation signal is introduced into the optical fiber, wherein the coupled excitation signal is a continuous wave signal modulated at variable frequencies; and

 a first detector positioned to receive radiation backscattered by the optical fiber in response to the coupled excitation signal.

Claim 8. (original) The system of claim 1, further comprising a second detector positioned to receive radiation backscattered by the optical fiber in response to the coupled excitation signal and sensitive to a different spectrum of backscattered radiation frequencies than the first detector.